CLAIMS

What is claimed is:

1. An liquid separator for separating liquid from a stream of fluid comprised of liquid and gaseous components, said liquid separator comprising:

a cylindrical housing having a upper portion, a bottom and an inner surface;

an inlet located in said cylindrical housing for receiving the stream of fluid;

a liquid outlet in the bottom of said cylindrical housing to remove liquid from said cylindrical housing, said liquid outlet being located generally centrally in said bottom;

a fluid outlet located in the upper portion of said cylindrical housing for removing the stream of fluid therefrom;

a deflector baffle within the cylindrical housing proximate to said inlet to direct the stream of fluid so as to flow generally circularly and downwardly around the inner surface of said cylindrical housing toward said liquid outlet; and

a plurality of radially directed baffles located at the bottom of said cylindrical housing to halt the circular motion of the stream of fluid from said inlet and to redirect the stream radially inwardly toward said liquid outlet whereby said liquid can be removed by means of said liquid outlet and fluid separated therefrom can be removed from said fluid outlet.

2. A liquid separator as defined in claim 1 wherein said inlet is located in the upper portion of said cylindrical housing.

3. A liquid separator as defined in claim 1 wherein said radially directed baffles are located in a lower chamber formed in said housing.

4. A liquid separator as defined in claim 3 wherein said radially directed baffles have upper edges and said lower chamber is formed by a baffle plate affixed to said upper edges of said radially directed baffles.

5. A liquid separator as defined in claim 1 wherein said baffle plate is circular forming an annular slot between the baffle plate and the inter surface of said cylindrical housing.

6. A liquid separator as defined in claim 4 wherein said baffle plate has a diameter a predetermined dimension smaller than the diameter of said inner surface of said cylindrical housing to form an annular slit between said circular plate and said inner surface of said housing.

7. A liquid separator as defined in claim 6 wherein said radially directed baffles form radial channels within the bottom of said housing to direct the stream of fluid radially inwardly toward said liquid outlet.

8. A method of forming a lower chamber in an oil separator, said method comprising the steps of:

providing an oil separator having a cylindrical housing and a circular bottom;

providing a plurality of generally planar baffles extending vertically upwardly from the bottom and having upper edges;

providing a baffle plate having holes formed therein in predetermined locations;

positioning said baffle plate atop of said upper edges of said baffles so as to align said holes with said upper edges of said baffles; and

welding said baffle plate to said upper edges of said baffles by laying a weld bead within said holes to contact and fuse with said upper edges of said baffles.

9. A method of forming an oil separator as defined in claim 8 wherein said step of providing a plurality of generally planar baffles comprises providing baffles that are radially oriented with respect to said baffle plate.

10. A method of forming an oil separator as defined in claim 8 wherein said step of providing a baffle plate having holes formed therein comprises providing a baffle plate having at least one hole to align with each of said baffles.

11. A welding and air compression system comprising:

an air compressor for providing a stream of compressed air containing oil;

means for generating an arc welding current;

means for driving both the air compressor and the means for generating an arc welding current;

an oil separator comprising a cylindrical housing having an inlet for receiving the stream of compressed air containing oil for said air compressor, said oil separator further having a upper portion having an air outlet and a generally circular bottom having an oil outlet located at about the center thereof;

said oil separator having a deflector baffle proximate to said inlet to direct oil in said stream toward said inner surface of said cylindrical housing to cause said oil to swirl around the inner surface in a generally downward direction toward said oil outlet while allowing said compressed air to progress upwardly to said air outlet; and

baffle means located at the bottom of said housing to redirect said swirling path of the oil from said inner surface of said housing into a radially inwardly path toward said outlet.

12. A welding and air compression system as defined in claim 11 wherein said bottom is substantially circular and said oil outlet is located at about the center of said bottom.

13. A welding and air compression system as defined in claim 12 wherein said baffle means comprises a plurality of baffles that form radial channels to direct the oil from the inner surface of said housing to said oil outlet.

14. A welding and air compression system as defined in claim 11 wherein said plurality of radial baffles are formed in said bottom and are radially formed along said bottom at predetermined intervals.

15. A welding and air compression system as defined in claim 11 wherein said baffle means is contained within a lower chamber formed in said housing.

16. A welding and air compression system as defined in claim 15 wherein said baffle means comprises a plurality of vertically disposed radial baffles having upper edges, and said lower chamber is formed by a baffle plate located above and proximate to the upper edges of said baffles to form an annular slot between said circular plate and the inner surface of said cylindrical housing.

17. A welding and air compression system as defined in claim 16 wherein said baffle plate abuts said upper edges of said baffles.

18. A welding and air compression system as defined in claim 17 wherein said baffle plate is affixed to said upper edges of said baffles.

19. A method of separating oil for a stream of compressed air containing oil, said method comprising the steps of:

providing a cylindrical housing having an inlet, an air outlet above said inlet and an oil outlet below said inlet;

directing a stream of oil from the stream of compressed air containing oil toward the inner surface of the cylindrical housing to form a swirling stream of oil along the inner surface of the housing that progresses downwardly while allowing air separated from the stream of compressed air containing oil to pass through the air outlet; and

providing at least one radially directed baffle located proximate to said oil outlet to redirecting the swirling path of the stream of oil from the inner surface of into a radial path toward said oil outlet.

20. A method as defined in claim 19 wherein said step of providing at least one radial directed baffle comprises providing a plurality of radially directed baffles contained within a lower chamber in said housing.

21. A method as defined in claim 20 where said step of providing said baffles contained within a lower chamber comprises providing a substantially circular plate located above said plurality of radially directed baffles to form the lower chamber.

22. A method as defined in claim 21 where said step of providing a substantially circular plate located above said plurality of radially directed baffles comprises affixing the circular plate to the radially directed baffles.

23. A method as defined in claim 22 where said step of affixing the substantially circular plate to said radially directed baffles comprises welding the substantially circular plate to the radially directed baffles so as to form a annular slot between the substantially circular plate and the inner surface of the cylindrical housing.